

Value Analysis Branch



VALUE ANALYSIS ANNUAL REPORT FY 2000/2001



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VALUE ANALYSIS OVERVIEW

WHAT IS VALUE ANALYSIS?

Value Analysis/ Value Engineering is a function-oriented, systematic team approach used to analyze and improve value in a product, facility design, system or service. It is a powerful methodology for solving problems and/or reducing costs while improving performance/quality requirements.

The VA Job Plan is an organized plan of action for accomplishing VA studies and assuring the implementation of the recommended changes. Below are summarized the 12 steps, as employed in Caltrans' VA Program, required to successfully complete a VA study. It begins with Initiate Study and ends with Publish Results.

Preparation	Study	Report
<ul style="list-style-type: none">• Initiate Study• Organize Study• Prepare Data	<ul style="list-style-type: none">• Inform Team• Analyze Functions• Create Ideas• Evaluate Ideas• Develop Alternatives• Critique Alternatives• Present Alternatives• Assess Alternatives• Resolve Alternatives• Present Results	<ul style="list-style-type: none">• Publish Results• Close-out Study

WHY USE VALUE ANALYSIS?

MAINTAIN FEDERAL FUNDING - Value analysis studies are required on all projects greater than \$25 million (construction, right of way, and capital outlay costs) on the National Highway System (NHS). The NHS Act of 1995, the subsequent Federal Rule (February 1997- Subpart 627) and the Federal Aid Policy Guide, which added a new Chapter 6- "Value Engineering" define the application of this regulation.

BUILDING CONSENSUS WITH OUR TRANSPORTATION PARTNERS - Value Analysis is an effective tool to break down conflicts and build consensus with project stakeholders and partners.

SOLVING DIFFICULT TRANSPORTATION PROBLEMS - Value Analysis enables study teams to focus on and solve difficult transportation problems. The VA team can provide an in-depth analysis and subsequent innovative solutions for the project.

IMPROVING PROJECT COSTS AND PERFORMANCE - Value Analysis studies measure both project costs and performance. Project costs should include the total cost of ownership, that is, both the original (construction) cost and subsequent operation and maintenance costs. VA recommendations recognize the relationship between performance and costs jointly determine project value improvements.

2000/2001 PROGRAM RESULTS

FY 01 Highway Studies

- At the beginning of the fiscal year 2001, 50 studies were planned, In FY 2001 there were 29 reported studies (all led by consultants). Of the 29 highway studies reported in FY 2001, 13 were studies begun in FY 2001, and the remaining studies were carried-over from previous fiscal years. Twenty-Four of the 29 were NHS studies.
- FISCAL YEAR 2002 Carryover: In fiscal Year 2000, 37 highway project studies begun in prior fiscal years were carried over into the Fiscal Year 2002 for implementation results, of which 16 studies were started in FY 2000 and 21 studies in prior years.

FY 01 Process Studies.

- Nine Process studies were reported in FY 2001. Seven process studies begun in previous fiscal years were carried over into Fiscal 2002.

VA Program Highlights

During Fiscal Year 2000/ 2001 Caltrans completed the following value analysis activities:

- On August 7-11, 2000, 30 individuals, predominantly North Region employees, were trained in a Value Analysis Training Workshop, 40-Hour (Module I) in Sacramento.
- In September 2000, Caltrans VA program staff participated in the AASHTO Value Engineering Task Force meeting in Utah to peen the details of the AASHTO VE Conference that was hosted by Caltrans in San Diego, July in 2001.
- In December 2000, Caltrans' Standard Special Provisions were updated to allow Contractors and the Resident Engineer to hold VA workshops on all projects over \$5 million. The purpose of the workshop is to identify value-enhancing opportunities that would reduce either the total project cost, time of construction, or traffic congestion, and that could be developed into CRIPS (Cost Reduction Improvement Proposals). Refer to Construction Bulletin CPB-00-4 for more details on these procedures.
- On January 18-19, 2001, Value Analysis seminars were held in District 7 to explain and promote the VA Program to District 7 Managers and Project Managers.
- On February 26, 2001, the VA program had the pleasure to host Japanese visitors from the Ministry of Land, Infrastructure and Transport, who were interested in studying Caltrans' VA program, along with other DOTs, prior to implementing a VA program of their own. This was the second time a Japanese government contingency had studied Caltrans VA program, the Shizouka Prefecture visited the program in 1997.

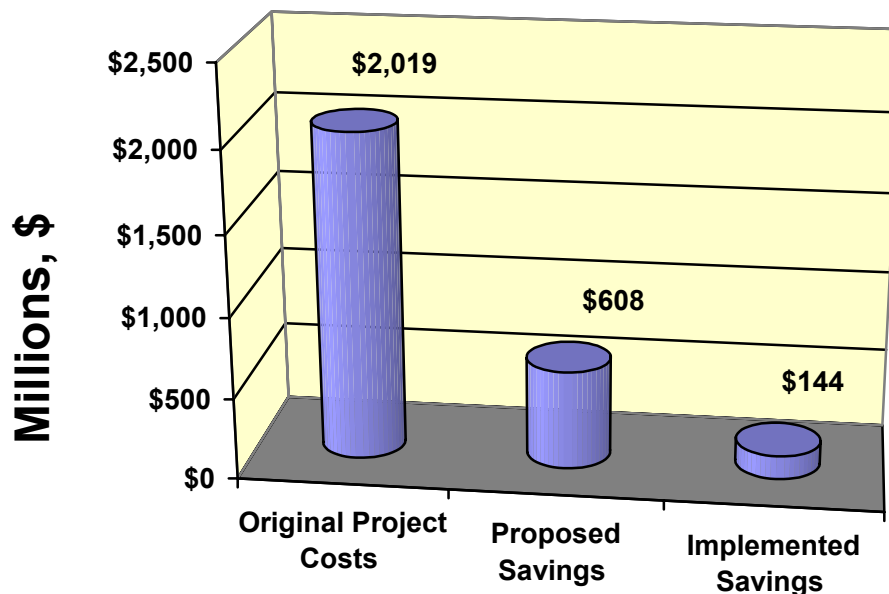
2000/2001 STUDY RESULTS

For the fiscal year ending June 30, 2001 Caltrans, completed the following value analysis activities:

- Thirty-eight (38) studies were reported: twenty-nine- (29) highway project studies and nine (9) process studies. Twenty-four (24) of the highway studies were NHS. Five (5) were District voluntary studies. An additional thirty-eight (38) highway project studies and five (5) process studies were performed that will be reported next year.
- Caltrans' \$114 million in implemented project cost savings and \$35 million in life-cycle costs ranked it first in the nation among DOTs.
- Twenty-Four (24) Cost Reduction Incentive Proposals (CRIP), otherwise known as Value Engineering Change Proposals (VECP), were submitted by contractors resulting in \$2.56 million State's share savings (50%).

TABLE 1
Mandatory NHS VA Studies – FY '2001

No. Studies	Original Project Costs	Value Analysis Alternatives					Team Study Cost	Return on Investment
		Proposed		Implemented				
	(\$ Billion)	No.	Savings (\$ Billion)	No.	Savings (\$ Million)	(\$ Million)		
24	\$2.019	156	\$608	52	\$144	\$1.46	74:1	



FHWA ANNUAL REPORT

Division/State: California

Fiscal Year: 2001

1. Number of VE studies completed this year.

In-house	Consultant	Total
0	29	29

2. Cost of performing the VE studies completed this year.

In-house	Consultant	Administrative	Total
\$532,423	\$683,400	\$498,438	\$1,714,261

3. Estimated construction costs of projects studied.

In-house	Consultant	Total
\$0	\$2,066,753,425	\$2,066,753,425

4. Number & Value of *All Proposed* VE Recommendations this year.

	In-House Led	Consultant Led	Total
Cost Savings	\$0	\$536,476,328	\$536,476,328
Cost Increases	\$0	\$131,230,134	\$131,230,134
No. Recommendations	0	144	144
Average Performance Improvement	TBD	TBD	TBD

5. Number & Value of *Approved & Conditionally Approved* VE recommendations

(Including carryover projects from other years).

Approved

	In-House Led	Consultant Led	Total
Cost Savings	0	\$114,345,000	\$114,345,000
Cost Increases	0	\$19,558,000	\$19,558,000
No. Recommendations	0	42	42
Ave. Performance Improvement (w/ CA)	0	TBD%	TBD%
Acceptance Rate (No. Alt. Accepted/ Proposed) w/ CA	0	29%	29%

Conditionally Approved

	In-House Led	Consultant Led	Total
Cost Savings	0	0	\$0
Cost Increases	0	0	\$32,806,000
No. Recommendations	0	0	30
Ave. Performance Improvement (w/ CA)	0	TBD%	TBD%
Acceptance Rate (w/ CA)	0	29%	29%

6. Life cycle cost (cost avoidance) savings from VE studies.

Proposed Recommendations

	In-House Led	Consultant Led	Total
Initial Savings *	\$0	\$405,246,194	\$405,246,194
Subsequent and Highway User Savings	\$0	\$77,851,826	\$77,851,826
Total (NPV) LCC Savings	\$0	\$483,098,020	\$483,098,020

* See Item 4 (Sum of Positive and Negative Initial Cost Savings)

Accepted Recommendations

	In-House Led	Consultant Led	Total
Initial Savings *	\$0	\$94,787,000	\$94,787,000
Subsequent and Highway User Savings	\$0	\$34,555,000	\$34,555,000
Total (NPV) LCC Savings	\$0	\$129,342,320	\$129,342,320

* See Item 5 (Sum of Positive and Negative Initial Cost Savings)

Conditionally Accepted Recommendations

	In-House Led	Consultant Led	Total
Initial Savings *	\$0	\$0	\$0
Subsequent and Highway User Savings	\$0	\$9,973,000	\$9,973,000
Total (NPV) LCC Savings	\$0	\$9,973,000	\$9,973,000

* See Item 5 (Sum of Positive and Negative Initial Cost Savings)

7. Total VE-related training costs (include an estimate of salaries of persons attending, travel cost and local incidental costs \$103,000).

8. Number of employees trained in VE during fiscal year.
 - a. FHWA 0
 - b. State and Others 24

9. Number of construction **VECP's** submitted 27.
10. Number of construction **VECP's** approved 24.
11. Savings from approved construction VECs.

In-house Value	\$1,278,932
Contractor Value	\$1,278,932
Total	\$2,557,864

Caltrans Value Analysis
Fiscal Year 2001 Highway Project Studies

Task Order	61	74	117	172	134	135	152	154	110	116
Value Analysis Contract No.	53A0005	53A0005	53A0020	53A0020	53A0020	53A0020	53A0020	53A0020	53A0020	53A0020
District	2	2	2	2	3	3	3	3	4	4
EA	02-10340	259531	299700	36840K	374221	333800	372300	0C470K	115750	253801
NHS (Y/N)	Y	Y	N	N	Y	Y	Y	Y	Y	N
Study Name	SR-89 Lake Britton Br.	Spanish Creek Bridge	SR-299 Modoc County	SR44/ Stillwater Intersection	NB I-5 to SB 113 Connector	Lincoln Bypass SR65	Marysville Bypass (Hwy Portion Only)	Yolo 16 Widening	Marin 101 HOVL Gap Closure Project	Maxwell Bridge Repl. - Napa 121
Team Leader	Terry Hays	Martin Hsu	Mike Adams	Ginger Adams	Ginger Adams	Mike Adams	Robert Stewart	Ginger Adams	Robert Stewart	Robert Stewart
Total Cost	\$ 61,957	\$ 44,707	\$ 51,436	\$ 59,688	\$ 54,738	\$ 66,422	\$ 47,588	\$ 60,613	\$ 57,318	\$ 54,330
Project Cost										
Initial	\$ 30,600,000	\$ 7,916,000	\$ 5,452,000	\$ 28,500,000	\$ 23,669,000	\$ 156,600,000	\$ 600,000,000	\$ 28,000,000	\$ 88,500,000	\$ 23,000,000
Accepted Cost Savings										
Initial	\$ 4,339,000		\$ 705,000	\$ 2,573,000	\$ 183,000	\$ -	\$ 58,933,000	\$ 50,000	\$ 1,350,000	\$ 287,000
Subsequent	\$ -	\$ 1,000,000	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Hwy User	\$ 1,119,000	\$ 5,080,000	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Accepted Cost Increases										
Initial	\$ -	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 556,000	\$ 762,000	\$ 1,100,000
Subsequent	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 989,000	\$ -
Hwy User	\$ -		\$ -		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Accepted LCC (NPV)										
Initial (Savings- Increases)	\$ 4,339,000	\$ (80,000)	\$ 705,000	\$ 2,573,000	\$ 183,000	\$ -	\$ 58,933,000	\$ (506,000)	\$ 588,000	\$ (813,000)
Subsequent (Savings- Increases)	\$ -	\$ 1,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (989,000)	\$ -
Hwy User (Savings- Increases)	\$ 1,119,000	\$ 5,080,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total NPV (Sum of Initial, Subs., Hwy User)	\$ 5,458,000	\$ 6,000,000	\$ 705,000	\$ 2,573,000	\$ 183,000	\$ -	\$ 58,933,000	\$ (506,000)	\$ (401,000)	\$ (813,000)
Performance Improvement										
Proposed	N/A	N/A	N/A	-4.0%	13%	-10%	1%	14%	19%	23%
Accepted	N/A	N/A	N/A	3.0%	8%	0%	1%	14%	19%	22%
including CA Potential	N/A	N/A	N/A	3.0%	8%	0%	1%	14%	19%	22%
Value Improvement										
Proposed	N/A	N/A	N/A	17%	14%	0%	19%	12%	29%	53%
Accepted	N/A	N/A	N/A	13%	8%	0%	12%	12%	19%	17%
including CA Potential	N/A	N/A	N/A	13%	8%	0%	12%	12%	19%	17%
Number of Alternatives										
Proposed	1	1	1	2	5	9	8	11	11	6
Accepted	1	1	1	1	1	0	5	10	6	2
Cond Accepted	0	0	0	0	0	0	1	0	0	0
Acceptance Rate - Accepted	100%	100%	100%	50%	20%	0%	63%	91%	55%	33%
Acceptance Rate - including Cond Accepted	100%	100%	100%	50%	20%	0%	75%	91%	55%	33%
Project Initial Cost Reduction	14%	0%	13%	9%	1%	0%	10%	0%	2%	1%
ROI (Study Initial Cost Savings/ Study Cost)	70:1	:1	14:1	43:1	3:1	.0:1	1238:1	1:1	24:1	5:1
(Accepted Value Improvement/ Study Costs) X 1,000,000	N/A	N/A	N/A	218:1	146:1	.0:1	252:1	198:1	331:1	313:1

Caltrans Value Analysis
Fiscal Year 2001 Highway Project Studies

Task Order	131	144	98/ 109	103	132	143	146	162	25	102	99E
Value Analysis Contract No.	53A0020	53A0020	53A0005	53A0020	53A0020	53A0020	53A0020	53A0020	53A0005	53A0020	53A0005
District	4	4	4	7	7	7	7	7	7	8	8
EA	171300	07102K & 0T1010	25620K	491600	07223-1816K	183101	115450	116790	060730	07130	404701 & 44780K
NHS (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Study Name	Route 580/ Northside I/C (Isabel Ave.)	Solano 12 Road Rehab. & Br. Repl.	I-80/ Ashby I/C Improvements	Arbor Vitae	Route 91 Pavement Rehabilitation	SR710 Rehabilitation	Ventura 23 Widening	Ventura 118 Widening	SR-101/ Santa Clara River Br. Seismic Retrofit	I-215 Improvements (San Bernardino)	I-15 Baker Grade
Team Leader	Robert Stewart	Robert Stewart	Robert Stewart	Mike Adams	Mike Adams	Mike Adams	Mike Adams	Mike Adams	Richard LaRuffa	Robert Stewart	Martin Hsu
Total Cost	\$ 62,788	\$ 59,788	\$ 64,188	\$ 61,097	\$ 61,287	\$ 64,467	\$ 60,261	\$ 76,639	\$ 63,745	\$ 56,988	\$ 52,791
Project Cost											
Initial	\$ 47,520,000	\$ 26,816,000	\$ 18,300,000	\$ 51,400,000	\$ 29,800,000	\$ 176,900,000	\$ 38,800,000	\$ 35,400,000	\$ 73,523,794	\$ 172,131,000	\$ 41,805,000
Accepted Cost Savings											
Initial	\$ -	\$ 2,564,000	\$ 1,292,000	\$ -	\$ -	\$ -	\$ -			\$ 21,253,000	\$ 1,570,000
Subsequent	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -			\$ 16,621,000	\$ 194,000
Hwy User	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -			\$ -	\$ 11,893,000
Accepted Cost Increases											
Initial	\$ -	\$ 1,238,000		\$ -	\$ -	\$ -	\$ 216,000	\$ 1,418,000		\$ 11,713,000	\$ 709,000
Subsequent	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
Hwy User	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
Accepted LCC (NPV)											
Initial (Savings- Increases)	\$ -	\$ 1,326,000	\$ 1,292,000	\$ -	\$ -	\$ -	\$ (216,000)	\$ (1,418,000)	\$ -	\$ 9,540,000	\$ 861,000
Subsequent (Savings- Increases)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 16,621,000	\$ 194,000
Hwy User (Savings- Increases)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11,893,000
Total NPV (Sum of Initial, Subs., Hwy User)	\$ -	\$ 1,326,000	\$ 1,292,000	\$ -	\$ -	\$ -	\$ (216,000)	\$ (1,418,000)	\$ -	\$ 26,161,000	\$ 12,948,000
Performance Improvement											
Proposed	6%	3.0%	5%	N/A	N/A	N/A	21%	15%	N/A	21%	N/A
Accepted	0%	3.0%	14%	N/A	N/A	N/A	3%	9%	N/A	21%	N/A
including CA Potential	0%	3.0%	14%	N/A	N/A	N/A	3%	9%	N/A	21%	N/A
Value Improvement											
Proposed	53%	8.0%	14%	N/A	N/A	N/A	15%	20%	N/A	20%	N/A
Accepted	0%	8.0%	27%	N/A	N/A	N/A	3%	5%	N/A	42%	N/A
including CA Potential	0%	8.0%	27%	N/A	N/A	N/A	3%	5%	N/A	42%	N/A
Number of Alternatives											
Proposed	7	5	3	3	3	3	7	2	21	7	15
Accepted	0	3	2	0	0	0	1	1	0	4	5
Cond Accepted	0	0	0	0	0	0	0	0	0	0	0
Acceptance Rate - Accepted	0%	60%	67%	0%	0%	0%	14%	50%	0%	57%	33%
Acceptance Rate - including Cond Accepted	0%	60%	67%	0%	0%	0%	14%	50%	0%	57%	33%
Project Initial Cost Reduction	0%	10%	7%	0%	0%	0%	0%	0%	0%	12%	4%
ROI (Study Initial Cost Savings/ Study Cost)	:1	43:1	20:1	:1	:1	:1	:1	:1	:1	373:1	30:1
(Accepted Value Improvement/ Study Costs) X 1,000,000	:1	134:1	421:1	N/A	N/A	N/A	50:1	65:1	N/A	737:1	N/A

Caltrans Value Analysis
Fiscal Year 2001 Highway Project Studies

Task Order	123	97/101	125	95	85	88	133	137	No of Studies	COMMENTS
Value Analysis Contract No.	53A0020	53A0005/20	53A0020	53A0005	53A0020	53A00005	53A0020	53A0020	29	
District	9	9	10	10	11	11	11	11	TOTALS/ AVERAGE	
EA	214400	213400	300160	44560 & 44540	?	23480K	30100	167820		
NHS (Y/N)	Y	Y	Y	Y	N	Y	Y	N		
Study Name	Manzanar Four Lane Project	Olancha / Cartago Four Lane	SJ-205 Widening	Sr-99 Wid. & Hammer Lane I/C	San Ysidro Port of Entry	I-15/SR-56 Interchange	I-5/I-805 Interchange	Imp-78 Brawley Bypass		
Team Leader	Ginger Adams	Ginger Adams	Mike Adams	Robert Stewart	Ginger Adams	Mike Adams	Robert Stewart	Robert Stewart		
Total Cost	\$ 69,888	\$ 59,188	\$ 57,656	\$ 57,604	\$ 57,788	\$ 60,455	\$ 82,188	\$ 50,538	\$ 1,738,127	Includes cost of team members and administrative costs distributed among 29 highway and 11 process studies.
Project Cost										
Initial	\$ 18,400,000	\$ 61,100,000	\$ 71,000,000	\$ 39,300,000	\$ 8,224,000	\$ 26,350,000	\$ 155,700,000	\$ 2,106,000	\$ 2,086,812,794	
Accepted Cost Savings										
Initial	\$ 882,000	\$ 7,325,000	\$ -	\$ -		\$ 2,055,000	\$ 7,000,000	\$ 1,776,000	\$ 114,137,000	
Subsequent	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ 17,815,000	
Hwy User	\$ -	\$ -	\$ -	\$ -	\$ 280,320	\$ -	\$ -	\$ -	\$ 18,372,320	
Accepted Cost Increases										
Initial		\$ -	\$ -	\$ 457,000	\$ 135,000	\$ 527,000	\$ -	\$ -	\$ 18,911,000	
Subsequent		\$ -	\$ -	\$ -	\$ 1,700,000	\$ -	\$ -	\$ -	\$ 2,689,000	
Hwy User		\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	
Accepted LCC (NPV)										
Initial (Savings- Increases)	\$ 882,000	\$ 7,325,000	\$ -	\$ (457,000)	\$ (135,000)	\$ 1,528,000	\$ 7,000,000	\$ 1,776,000	\$ 95,226,000	
Subsequent (Savings- Increases)	\$ -	\$ -	\$ -	\$ -	\$ (1,700,000)	\$ -	\$ -	\$ -	\$ 15,126,000	
Hwy User (Savings- Increases)	\$ -	\$ -	\$ -	\$ -	\$ 280,320	\$ -	\$ -	\$ -	\$ 18,372,320	
Total NPV (Sum of Initial, Subs., Hwy User)	\$ 882,000	\$ 7,325,000	\$ -	\$ (457,000)	\$ (1,554,680)	\$ 1,528,000	\$ 7,000,000	\$ 1,776,000	\$ 128,724,320	
Performance Improvement										
Proposed	11%	N/A	N/A	N/A	N/A	N/A	32%	36%	#REF!	Average of studies with performance figures.
Accepted	8.0%	N/A	N/A	N/A	N/A	N/A	21.0%	36.0%	#REF!	Average of studies with performance figures.
including CA Potential	8.0%	N/A	N/A	N/A	N/A	N/A	21.0%	36.0%	#REF!	Average of studies with performance figures.
Value Improvement										
Proposed	8%	N/A	N/A	N/A	N/A	N/A	38%	90%	#REF!	Average of studies with performance figures.
Accepted	11.0%	N/A	N/A	N/A	N/A	N/A	26.0%	90.0%	#REF!	Average of studies with performance figures.
including CA Potential	11.0%	N/A	N/A	N/A	N/A	N/A	26.0%	90.0%	#REF!	Average of studies with performance figures.
Number of Alternatives										
Proposed	6	3	4	4	22	10	7	1	188	
Accepted	3	1	0	1	6	4	3	1	63	
Cond Accepted	0	0	0	0	0	0	0	0	1	
Acceptance Rate - Accepted	50%	33%	0%	25%	27%	40%	43%	100%	34%	
Acceptance Rate - including Cond Accepted	50%	33%	0%	25%	27%	40%	43%	100%	34%	
Project Initial Cost Reduction	5%	12%	0%	0%	0%	8%	4%	84%	5%	
ROI (Study Initial Cost Savings/ Study Cost)	13:1	124:1	:1	:1	:1	34:1	85:1	35:1	66:1	
(Accepted Value Improvement/ Study Costs) X 1,000,000	157:1	N/A	N/A	N/A	N/A	N/A	316:1	1781:1	#REF!	Average of studies with performance figures.

PROCESS STUDIES

SR905 Design Sequencing TO-171	Developed a flow chart depicting how, in general, design sequencing activities may be performed in parallel. Also developed a list of what is included in a typical bid package, a list of the minimum information needed to go out for bid for Design Sequencing (including desired level of completion for each item on the list), recommendations related to payment methods, an estimate of time savings associated with Design Sequencing (6 to 9 months), and a draft Request for Qualifications to be used for soliciting a design sequencing contractor.
D-11 Program and Project Management Processes TO-141	Defined the roles, policies, and procedures of the District's Program Management Branch from project initiation to project close-out. Identified stakeholders (customers) and the corresponding benefits of the branch's products and services, as well as the risks associated with delivery failures and/or delays. The information was intended to form the basis for a Reference Manual to be developed for use within the Program Management Branch.
D-11 Consultant Contract Procurement Process TO-140	Developed detailed flow charts, with timelines, for the five different processes used by the State to advertise for and hire a consultant. Developed a similar flow chart for the process used by SANDAG. The goal was to identify similarities and differences between the Caltrans and SANDAG processes, what steps in the processes are required by law, and what steps might be eliminated or shortened. A follow-up VA study may occur to address specific recommendations for streamlining these processes.
D-11 I-15 / 40th Street Noise Abatement TO-130	<p>Identified noise abatement solutions for eight properties severely affected by the I-15 / 40th Street road widening project, and to identify any noise mitigation protocol or process improvements that could benefit upcoming I-15 and I-5 widening projects. Recommendations 11.0 - 16.0 address specific mitigation action for the eight properties. Use of composite sound walls alleviate most of the noise abatement problems and save ~ \$445,000.</p> <p>Alternatives: 1.0 addresses main protocol changes and includes a protocol decision flow chart. Alts 2.0, 3.0, and 8.0 are noise abatement solutions that should clearly be part of the protocol. Alt 4.0 and 10.0 are long-term solutions that address the root cause of the highway noise problem.</p>

D-11 Cost Estimating
Procedures

TO-128

In total, the cost Estimating team developed 8 specific recommendations which address the key issues. The team considers that all the recommendations will be beneficial to improving the quality of the cost estimates and credibility of Caltrans in presenting future estimates. Issues and concerns with the current process include:

1. Expectation of stakeholders, decision makers, and/or project sponsors relative to the accuracy of the estimate
2. Programming timing and opportunity.
3. Cost estimate effect on priority setting
4. Accountability for cost estimates.
5. Experience and capability of the estimators.
6. Scope Creep
7. Limited technical and other project information available at the time of the estimate and the resulting assumptions
8. Understanding of what is in the cost estimate (including contingency and escalation factors), assumptions made in the estimate, and the importance of timely documentation of what changed and the cost impact of that change.
9. There is poor team involvement in developing cost estimates.
10. Cost estimate increases lead to the perception by some stakeholders that the solution or preferred project is estimated low. This affects credibility and decision making that makes programming of projects more difficult.

The recommendations to address these issues are listed below:

Recommendation 1: Include escalation to start of construction in all estimates.

Recommendation 2: Provide the Project Manager and PDT the opportunity to define cost estimate contingency based on unknowns and risks instead of using the standard percentage. Document these assumptions and risks and develop a system to track cost and contingency changes. Share this information with the District's transportation partners and include analysis of risks and uncertainties with all cost estimates.

Recommendation 3: Each Functional Area develops cost estimating strategy and rationale for all estimates provided. Functional Areas are responsible and accountable, for meeting their estimates. Using calculated percentages of the overall project estimate is not acceptable without supporting documentation and methodology.

Recommendation 4: Increase emphasis on cost estimates throughout the District.

Recommendation 5: Improve cost estimating proficiency.

Recommendation 6: Peer Review of Project Prior to Programming STIP type projects.

Recommendation 7: More analysis during PSR or PSR/PDS phase, increased effort by all functional groups.

Recommendation 8: Caltrans estimates should be provided for all alternatives presented in the PSR, PR, PSR/PDS alternatives.

<p>HQ Construction Contract Management Procedure</p> <p>TO-113</p>	<p>Developed Business Plan, Roles and Responsibilities, identified key processes, which need to be used for newly formed Office. Developed a brochure to inform their customers about the roles and responsibilities of OCM. Final report is in the process of being completed.</p>
<p>Labor Compliance II</p> <p>TO-105</p>	<p>Developed specific recommendations for change to the current Labor Compliance process. Identified several activities which can be standardized on a Statewide basis, and several which must be tailored within Districts. Alternatives accepted by Headquarters included many items, which were already in progress at the time of the Implementation meeting. Key alternatives accepted included information sharing via database, assignment of a full time person to develop a Desk Manual, training, annual workshops with other agencies involved in the Labor Compliance process, automation of forms, diaries, and employee interviews, and improved communications among headquarters, Labor Compliance officers in the Districts, construction personnel, Office Engineer, other State agencies, and Contractors.</p>
<p>D-11 Technology Effectiveness for Traffic Support</p> <p>TO-99A</p>	<p>Developed specific recommendations for automation of certain tasks, information gathering, and data storage for the Census & Speed Zones, Accident Records, and Signing & Delineation groups within the Traffic Support Branch. Recommendations were geared to streamline processes and improve productivity within the branch. Key alternatives implemented included automating traffic data collection, using geo-referencing for data, putting speed zone survey sheets on Microstation/CADD, putting public information on a web page, the ability to export Traffic Volumes data to other programs, creation of a system to locate special signs using GIS, and incorporating the HT-65 database with the processing of HT-65s.</p>
<p>Headquarters Hazardous Waste</p> <p>TO-60</p>	<p>Resulted in updating the Hazardous Waste Process to provide better information to the PDT, earlier. This will allow for better project decisions and minimize changes after Project Approval. The team finalized their implementation plan to ensure that it is in compliance with the new Change Control process.</p>

Number of process studies reporting for FY 2001= 9

2000/2001 AWARDS

External Awards:

- **2001 AASHTO Value Engineering Award** - On July 11, 2001 the AASHTO Value Engineering Task Force awarded Caltrans the 2001 AASHTO Value Engineering Award for Most Innovative Proposal in Process Improvement for the "Design Sequencing" study. This award was bestowed on Caltrans for its efforts, particularly as done in the study, in applying design build practices within the department.

Design sequencing is effectively a "design-build" process with Caltrans as the designer and contractor(s) selected before final design is complete in order to accelerate construction activities for segments of specific work elements of the project and avoid the need to wait for final design to be complete.

The study identified the following:

- project delivery process changes necessary for design sequencing,
- the contractor selection process and criteria,
- added contractor responsibilities during final design to improve the design and schedule further,
- critical items needed before contractor selection,
- project organization and structure changes necessary to ensure the success of design sequencing,
- contractor selection / task order process,
- contractor change and approval process.

AB 405 allowed construction to commence on the six pilot projects without the typically requisite 100 percent completion of plans and specifications for the entire project.

District 11 has submitted proposals to test design sequencing on three new alignment projects.

Internal Awards:

The FHWA "Most Outstanding Value Engineering Study Award":

On April 24, 2002 a panel of Caltrans and FHWA Engineers selected District 8's I-215 Improvements in the City of San Bernardino VA study as the recipient of the FHWA "Most Outstanding Value Engineering Study" award. The Value Engineering study provided improvements in project quality and safety, reduced costs and gained consensus on the project scope with Caltrans transportation partners. District 8 was recognized with a plaque by FHWA at a ceremony held in District 8 on July 9, 2002.

AWARDS . . .

The Caltrans "E. Darwin Spartz Excellence in Value Engineering Award":

On April 24, 2003, a panel of Caltrans and FHWA Engineers selected Jose Ornelas and Joel Haven to receive the Caltrans', **"E. Darwin Spartz Excellence in Value Engineering"** award for the 2000/2001 Fiscal Year.

With an estimated combined population of five million, the San Diego-Tijuana region forms the largest "twin-cities" on the U.S. Mexico border. Understandably, the mobility of goods and people requires intense coordination and cooperative efforts between Federal, State and Municipal governments on both sides of the Border. In an effort to address key issues of mutual interest to each of these entities, Caltrans District 11 conducted three VA Studies in 2000/2001: 1) San Ysidro Port of Entry (POE). 2) Otay Mesa POE Southbound Cargo Facility. 3) SR-11/Otay Mesa POE, Southbound Truck Operations.

Two of the Studies, San Ysidro POE and Otay Mesa POE Southbound Cargo Facility, were sponsored by Joel Haven, Deputy District Director of Traffic Operations and were lead by the District 11 Border Liaison, Jose Ornelas. Although Traffic Operations did not sponsor the third study, the SR 11/Otay Mesa East POE, Jose Ornelas participated as a critical key team member and was responsible for recruiting key stakeholders.

Traffic Operations Division, and Mr. Ornelas in particular, demonstrated leadership in the use of Value Analysis by proving to our partners that VA is an effective tool to improve safety, quality, and solve difficult international and inter-regional issues at the border. The recommendations, benefits, and goodwill developed in the course of these Studies are invaluable and worthy of the prestigious E. Darwin Spartz Excellence in Value Engineering Award.

The Caltrans "Value Analysis Coordinator of the Year Award "

On April 24, 2002, a panel of Caltrans and FHWA Engineers selected Oscar Vasquez to receive the Caltrans **" Value Analysis Coordinator of the Year Award "** for both Fiscal Year 2000/2001. District 3 and Oscar Vasquez were recognized with plaques at an awards ceremony in District 3 on July 2, 2002.

The Caltrans **" Value Analysis Coordinator of the Year Award "** is conferred on the District Value Analysis Coordinator who best exemplifies a solid commitment to promoting the value and need of VA in Caltrans. It rewards Oscar's exceptional effort in arranging team member training for 20 Northern Region and HQ Division of Engineering Services staff. In addition, Oscar arranged and held focus training for Northern Region supervisors and managers. This has allowed the Northern Region to maintain a strong pool of VA team members to draw from, and has increased the awareness of the VA program. Oscar has coordinated and assisted VA Coordinators in several Districts, particularly in Districts 1 and 2, with their programs and incorporating their programs into the Northern Region VA program. As the North Region VA Coordinator, his coordination has been vital to ensure adequate team member representation, scheduling of VA studies, and to avoid duplication of effort.

VALUE ANALYSIS TRAINING

After an aggressive training program last fiscal year the number of training opportunities were reduced, but have resumed in FY 99/00.

- On August 7-11, 2000, 30 individuals, predominantly North Region employees, were trained in a Value Analysis Training Workshop, 40-Hour (Module I) in Sacramento.
- On January 18-19, 2001, Value Analysis seminars were held in District 7 to disseminate information about the VA Program with District 7 Management and Project Managers.

Roger Sperling introduces the VA Team Guide to Study Participants



HISTORICAL HIGHWAY PROJECT SAVINGS

The historical savings from the Caltrans VA program are presented graphically in the following two figures. Figures 1 and 2 show the implemented savings for highway projects. Figure 3 shows the number of completed studies by District.

Figure 1
VA Highway Project Saving - FY '98 to '2001

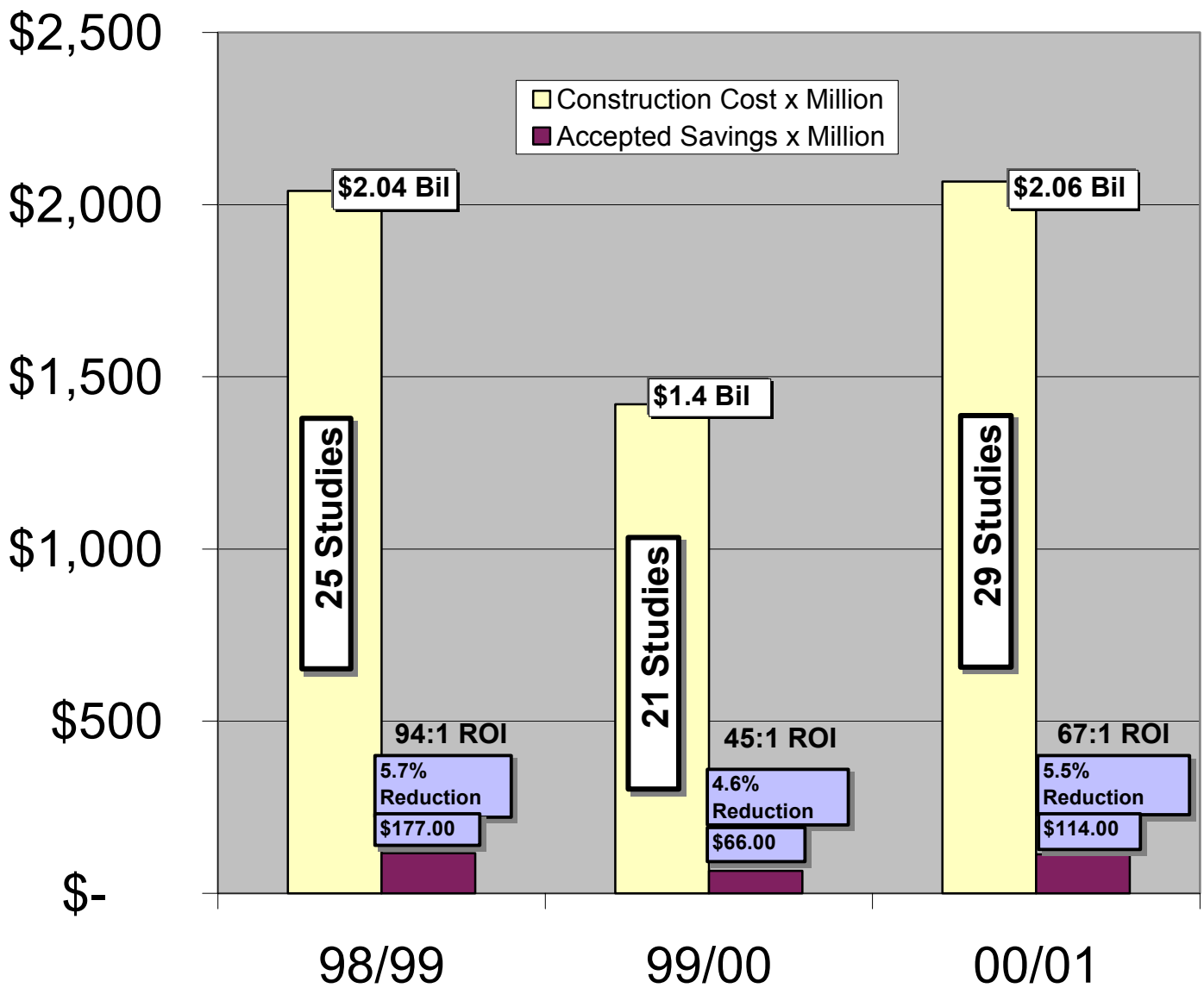


Figure 2

VALUE ANALYSIS HIGHWAY PROJECT SAVINGS (1996-2001)

FY 96+ studies are based on implementation results reported by Project Managers Latest Revision Date: 12/18/01

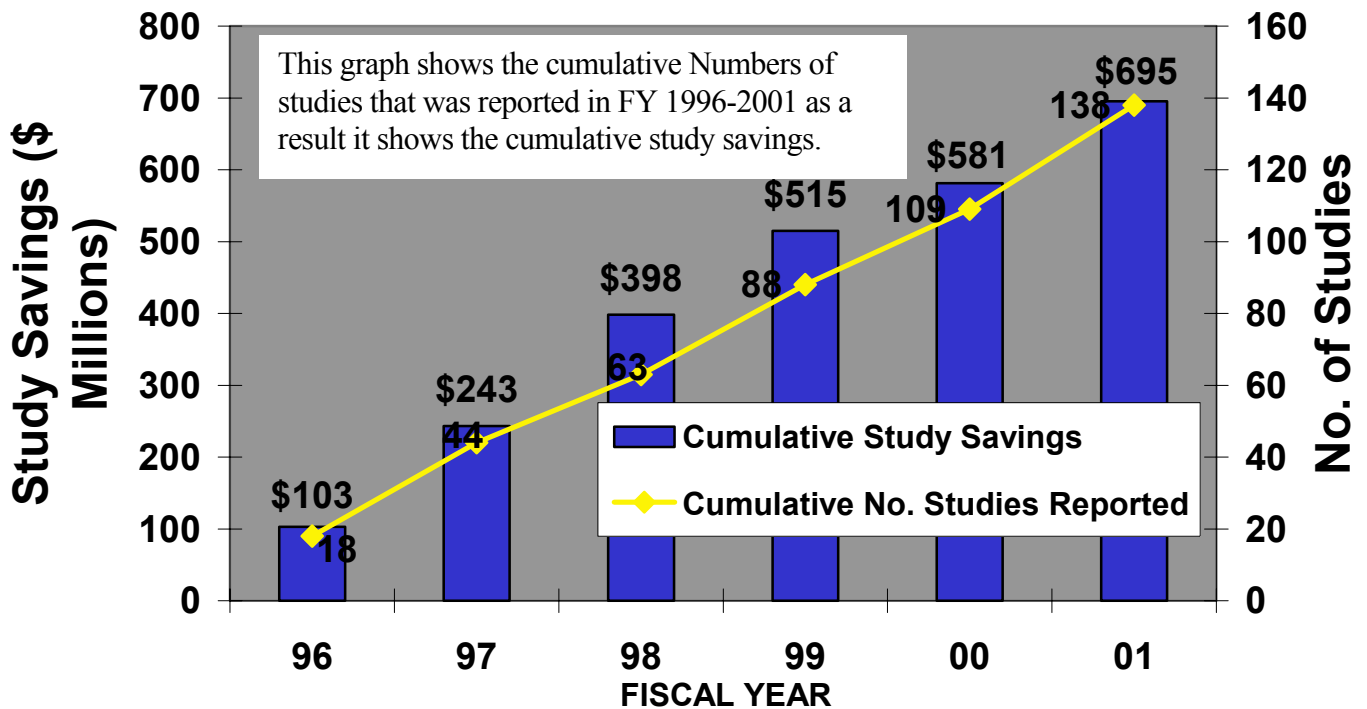
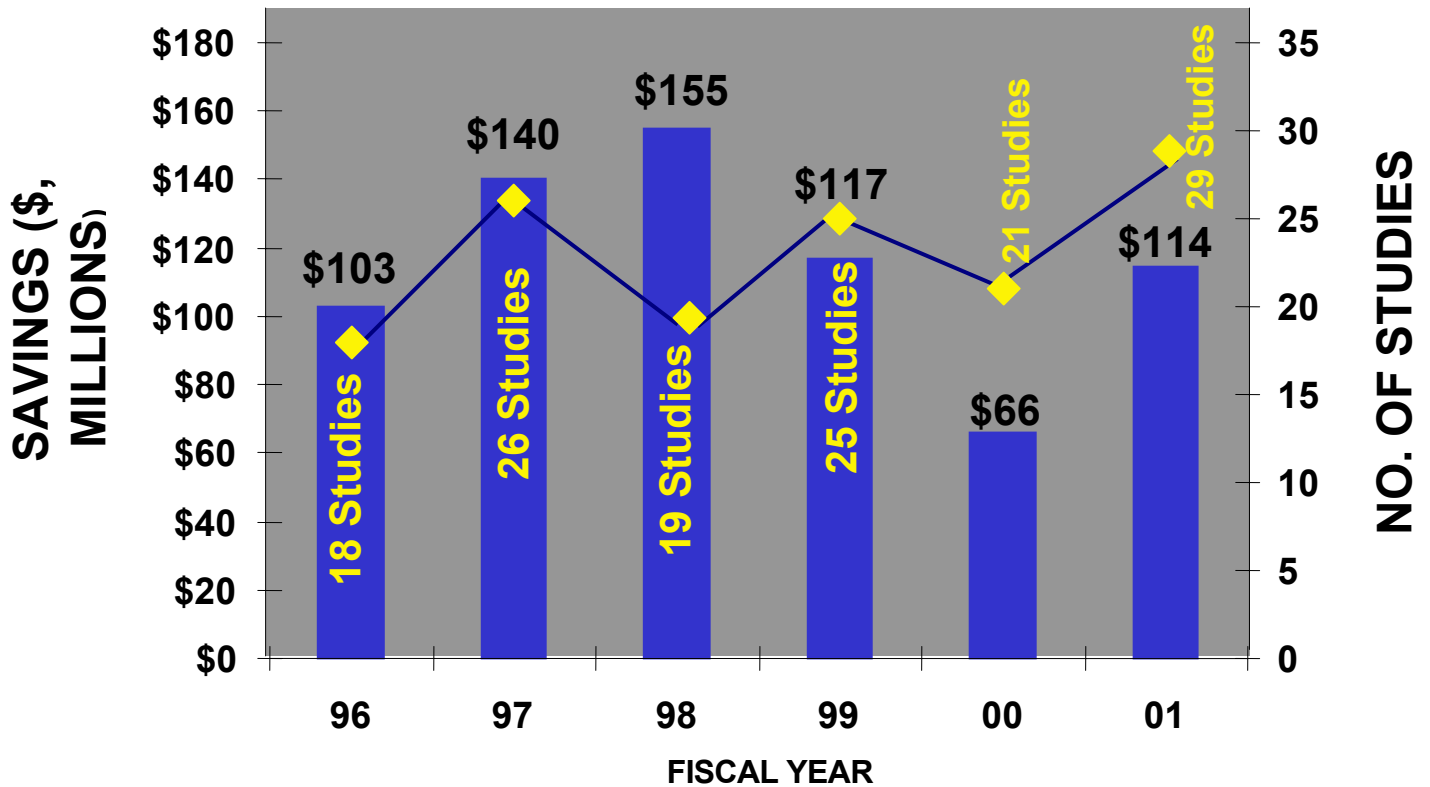
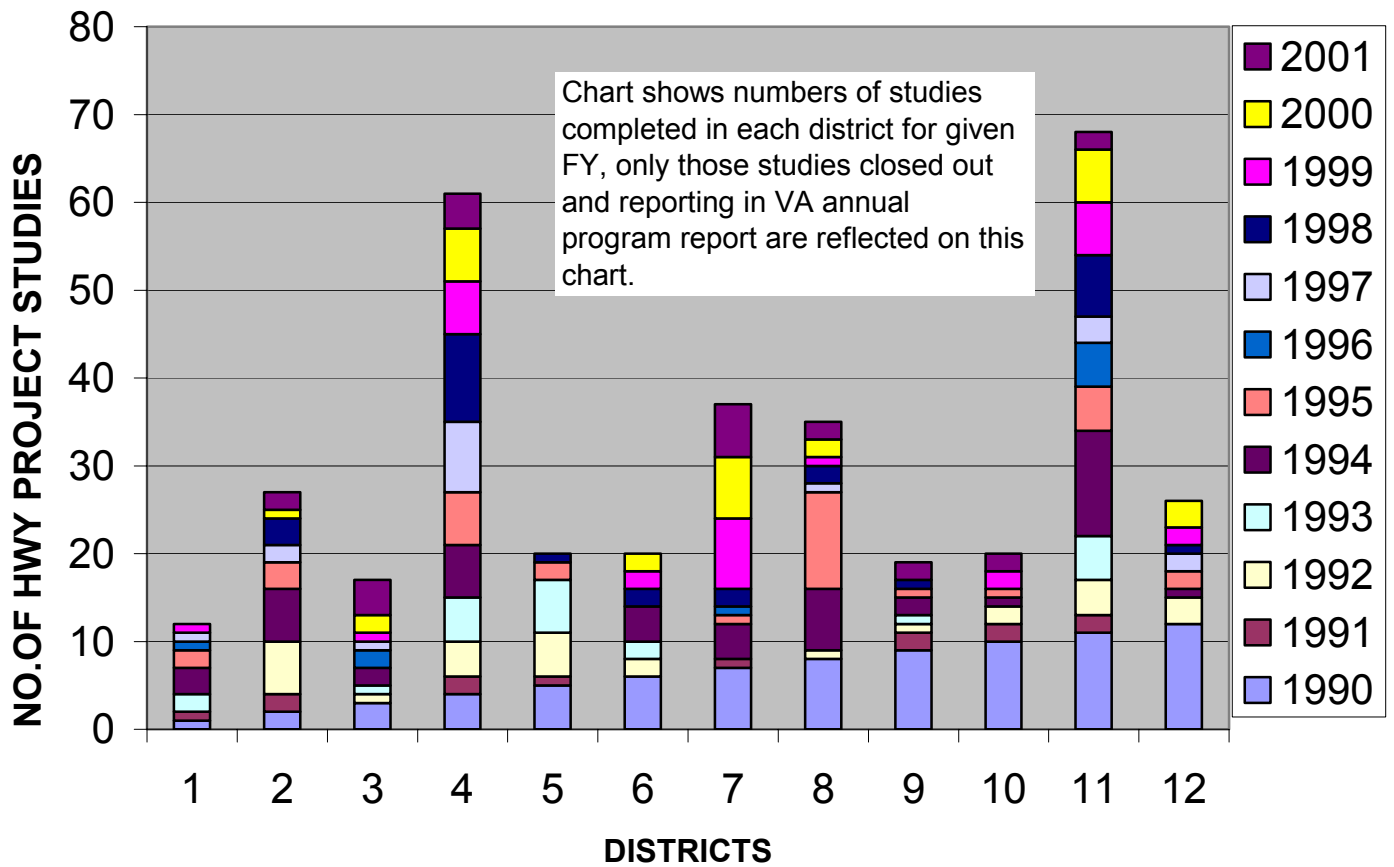


Figure 3

VA Study Completion Trend - FY 1990 to 2001



MANDATED NHS PROJECTS

Federal legislation mandates highway that projects on the National Highway System (NHS) with project costs over \$25 million be value analyzed for federal aid participation. Three hundred fifty nine projects, with projects costs of over \$22 Billion have been identified under this mandate. One hundred fifty nine projects have been value analyzed to date. An additional 200 projects still need VA studies. The federal rule defines a project as portion of highway a state proposes to construct, reconstruct or improve as described in the preliminary design report or applicable environmental document and may consist of several contracts or phases over several years. The cost threshold includes construction cost, right of way costs, and capital outlay support costs. Figure 4 shows these projects by Caltrans district. Figure 5 shows the number of projects by targeted PS&E date.

Figure 4
Mandated NHS Projects by District

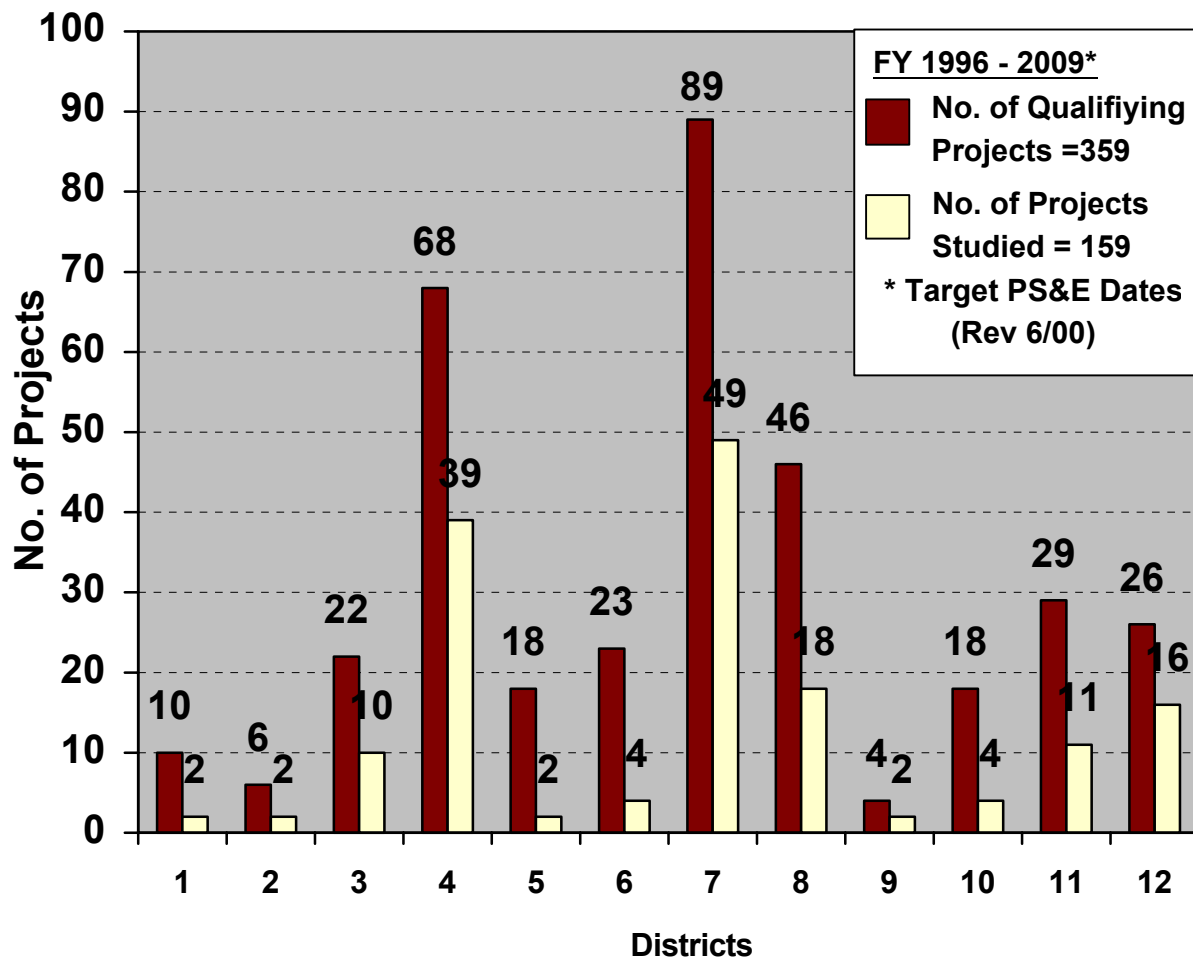


Figure 5

Mandated NHS Projects by Target PS&E (by given Fiscal Year)

